

Abstract

The present invention relates to a device for electron beam pulse formation and amplification comprising an electron beam axis (5) for microstructuring and amplifying current pulses. Such a device is especially suitable for pulse frequencies of from 100 to 400 MHz and power amplifications of several megawatts. The device can be used especially for ion beam acceleration, the device being arranged directly in an ion accelerator tank (1) having a central container axis (2) for guiding and accelerating a pulsed ion beam (3) in the container axis (2). The electron beam pulse formation and amplification device (4) is arranged with its electron beam axis (5) transverse and offset relative to the container axis (2) and comprises outside the ion accelerator tank (1) device components for microstructuring the electron beam (14) and, inside the container, comprises device components for output coupling of the electron beam to the consumer, which, in a preferred embodiment, is the ion beam (3) itself. The present invention relates also to corresponding methods of, on the one hand, ion beam acceleration and, on the other hand, electron beam pulse formation and amplification.

[Fig. 1, Fig. 9 and Fig. 10]